3

telephone number, the answering machine may determine if the calling party is the service provider by detecting a unique predetermined tone or sequence of tones, e.g., "touch-tone" DTMF tones, that the service provider may transmit.

The answering machine displays at least an indication that messages have been received, but preferably displays additional information. For example, it may display the number of calls and email messages received. It may also display the time and date of email and voice messages. It may also display the identities of email senders. Similarly, it may display the telephone numbers or corresponding names of callers who left voice messages, which it may obtain using the CND service or by decoding predetermined tones, e.g., DTMF tones, that identify the caller.

A user can view the display and review the messages. If the email and voice messages are identified individually on the display, the caller may select an individual message to review. Voice messages are played through the speaker, and email messages are provided on the display. If the entire email message has been stored, the body of the message is retrieved from memory and displayed. If only a portion of the selected email message, such as the header, has been stored, the answering machine calls the service provider and downloads the remaining portion of the message and displays it. At that time it may download any other messages that have been received. If a selected email message includes a voice attachment, the answering machine plays that attachment through the speaker as well as displays any text in the body of the message.

The system of the present invention allows a user to conveniently record and review both voice and email messages using an integrated answering machine connected to the user's telephone line.

The user may also compose either an email message or a voice message and send the message via the Internet to a remote email address. This composed message may be a reply to a previously received message.

In addition, the answering machine may include password protection. The user may be required to properly enter a password or code before the messages are displayed or played.

The answering machine may be accessed via a remote computer, such as a portable laptop computer. This remote computer may place a call to the answering machine via a data modem, and may provide DTMF or calling tones or modem data protocols that will provide commands to the answering machine. These commands may include commands that allow the remote user to forward messages, reply to messages, clear all messages, and record a new outgoing message. The answering machine may send and receive virtually any type of data, binary, ASCII, voice, sound and graphics.

The answering machine may also perform the above functions on a PBX telephone system. Each user on the PBX system may perform all functions described above from the user's telephone extension. The answering machine preferably sends and receives email securely for each PBX user.

An exemplary sequence of events that reveals the convenience and ease-of-use of the present invention is as follows: A user may look at the answering machine and visually determine whether messages have arrived. The user can listen to all voice messages and display all text messages. For each Internet message, the user can immediately reply by pressing a "REPLY" key or by typing a message and pressing the "REPLY" key.

The answering machine may support all common email protocols, including the TELESCRIPT protocol.

4

The foregoing, together with other features and advantages of the present invention, will become more apparent when referring to the following specification, claims, and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention, reference is now made to the following detailed description of the embodiments illustrated in the accompanying drawings, wherein:

FIG. 1 is a schematic illustration of an Internet answering machine;

FIGS. 2-1 and 2-2 are a flow diagram illustrating a method for receiving and storing messages in the answering machine;

FIG. 3 is a flow diagram illustrating an alternate method for receiving and storing messages in the answering machine;

FIG. 4 illustrates the display of the answering machine;

FIG. 5 is a flow diagram illustrating a method for retrieving the remaining portions of messages; and

FIG. 6 is a flow diagram illustrating a method for composing and transmitting messages using the answering machine.

DESCRIPTION OF PREFERRED EMBODIMENTS

As illustrated in FIG. 1, an Internet answering machine is connectable to a telephone line 5 and comprises a processor 10, memory 12, a modem 14, a display 16, a keypad 18, and a data access arrangement (DAA) 20, an analog-to-digital (A/D) converter 22, a digital-to-analog (D/A) converter 24 and a speaker 26. As described below in further detail, the answering machine allows a user to review both voice and email messages that are received via telephone line 5. Incoming email messages are stored directly in memory 12 under the control of processor 10. Incoming voice messages are digitized by A/D converter 22 and stored in memory 12 under the control of processor 10. Processor 10 displays information on display 16 to notify the user of messages that have been received. The user may enter commands on keypad 18 to cause processor 10 to retrieve email and voice messages from memory 12 and display the email messages on display 16 and play the voice messages through speaker 26 via D/A converter 24.

Processor 10 is preferably an economical 8-bit microprocessor or microcontroller, such as an Intel 80186 or NEC V-25. Nevertheless, any processor or combination of processors or equivalent programmable control logic capable of being programmed to perform the method of the present invention, as described below, is suitable.

Memory 12 stores suitable program instructions for operating processor 10 in accordance with the method of the present invention described below. Memory 12 also preferably stores incoming voice and email message data in accordance with the method of the present invention described below. Nevertheless, a separate memory may be provided for recording the message data. Memory 12 preferably includes non-volatile Random Access Memory (RAM) for storing program instructions, and any suitable combination of static RAM (SRAM) memory, dynamic RAM (DRAM) memory, flash memory, credit-card memory, or disk memory for storing message data. Although the preferred means for recording message data is memory 12, any suitable recording means may be used. For example,